



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/574,496

04/03/2006

Yusaku Inaba

358275.30001

9199

38327

7590

08/24/2009

Juan Carlos A. Marquez

c/o Stites & Harbison PLLC

1199 North Fairfax Street

Suite 900

Alexandria, VA 22314-1437

EXAMINER

JACOBSON, MICHELE LYNN

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,496	Applicant(s) INABA ET AL.	
	Examiner MICHELE JACOBSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,6-8,10-13 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-8,10-13 and 15-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/23/09 has been entered.

Examiner Notes

2. Any objections and/or rejections made in the previous action, and not repeated below, are hereby withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 6-8, 10-13 and 15-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohba et al. WO 99/52973 U.S. Patent No. 6,605,344 used herein for reference (hereafter referred to as Ohba).

5. Ohba teaches a gas-barrier film which is produced through application of a metallic compound to a polymer layer formed from a mixture of a poly(meth)acrylic acid polymer and a polyalcohol such as sugar. The present invention provides a gas-barrier film which exhibits excellent oxygen-gas-barrier properties, particularly in an atmosphere of high humidity, and which is suitably used in sterilization treatment such as retorting or boiling. (Col. 1, lines 5-15) The metallic-compound-containing layer which is applied to the surface of a polymer layer may be a layer containing a metallic compound alone, or a layer containing a resin in which a metallic compound is mixed or dispersed. (Col. 2, lines 48-52) Transition metals having an oxidation number of +2 are preferable for the metallic compound in the polymer layer. (Col. 7, lines 17-18)

6. The polycarboxylic acid based polymer layer mixed with a polyalcohol is recited to be formed by processes including solution casting, extrusion and a coating process which involves applying a solution of the composition on a substrate film. (Col. 6, lines 26-48) In the coating process, a solution of a mixture polycarboxylic acid and polyalcohol is applied onto a support or substrate such as a metallic plate, glass plate or plastic plate by use of a coater to form a layer comprising polycarboxylic acid and polyalcohol. Such a layer is then dried to form a film. (Col. 6, line 64-Col. 7, lines 9)

7. In the film of Ohba in which a metallic-compound-containing layer is applied to the surface of a polymer layer formed from a mixture of a poly(meth)acrylic acid polymer

Art Unit: 1794

and a polyalcohol, a metal invades the polymer layer from the metallic-compound-containing layer. As described below, invasion of a metal can be confirmed by means of energy-dispersive X-ray spectroscopy (EDX). The existence ratio in the polymer layer (the number of counting of metallic atoms/the number of counting of oxygen atoms) is 0.1-20 at a position 0.1 μm deep in a polymer layer from the interface between the polymer layer and a layer containing a metallic compound solely or a layer of a mixture of metallic compound and resin, preferably 0.5-10. When the existence ratio is high, the amount of a metallic compound in a polymer layer is large. (Col. 3, lines 22-36)

8. As used in Ohba, the term "polyalcohol" refers to low molecular weight compounds containing two or more hydroxyl groups, alcohol polymers, polyvinyl alcohols (PVA), sugars, and starches. Examples of low molecular weight compounds containing two or more hydroxyl groups include glycerin, ethylene glycol, propylene glycol and polyethylene glycol. The sugars recited to be included in the polyalcohol recitation include sugar alcohols such as mannitol, dulcitol and erythritol. In consideration of production of a polymer layer exhibiting excellent oxygen-gas-barrier properties under high humidity, the mixture ratio (by weight) of poly(meth)acrylic acid polymer to polyalcohol is preferably 99:1-20:80, more preferably 95:5-40:60, much more preferably 95:5-50:50. (Col. 5, lines 10-31 and 50-55)

9. The gas-barrier film of Ohba and the laminated gas-barrier film produced therefrom exhibit excellent oxygen-gas-barrier properties in an atmosphere of high humidity. Therefore, the films are suitably employed for packaging material of beverages or foods susceptible to oxygen, such as furikake (processed seasoning

Art Unit: 1794

granules), wine, dried bonito, miso, ketchup, and snacks. Particularly, the films are suitably employed for packaging material of foods which undergo sterilization treatment such as retorting or boiling, such as curry, stew, broth, sauce, and corn. The films are employed in the form of, for example, bag, casing, pouch, or capping material. (Col. 10, line 62-Col. 11, line 6)

10. The laminate of Ohba is recited to produce a polymer film exhibiting excellent gas-barrier properties; i.e., a polymer layer having a thickness of 2 μm has an oxygen permeability of $2.0 \times 10^{-12} \text{ mol/m}^2 \cdot \text{s} \cdot \text{Pa}$ ($400 \text{ cm}^3/\text{m}^2 \cdot 24\text{h} \cdot \text{atm}$) or less as measured at 30° C. and 80% RH. (Col. 9, lines 37-41) Examples 1-18 provide laminates with oxygen permeability coefficients of less than $1.5 \text{ cm}^3/\text{m}^2 \cdot 24\text{h} \cdot \text{atm}$. (Table 1-1) A polymer layer, such as a polymer film, a laminate comprising a substrate and a film, or a polymer layer to which a metallic-compound-containing layer is applied may be subjected to heat treatment. (Col. 9, lines 42-47) After completion of heat treatment, the resultant polymer layer has water resistance and exhibits excellent gas-barrier properties under high humidity. (Col. 9, lines 47-54)

11. Ohba is silent regarding stretch forming of the laminate recited.

12. Ohba recites a gas barrier film comprising a layer of polycarboxylic acid polymer mixed with a polyalcohol (the polyalcohols recited by Ohba being the same as the plasticizers recited by applicant) in a ratio within the ranges claimed by applicant and a layer comprising a bivalent metal compound and resin which is the same composition as claimed by applicant exhibiting an oxygen permeability the same as that claimed by applicant. While Ohba is silent regarding stretch forming of the laminate recited, Ohba

Art Unit: 1794

does recite that the laminate film would be useful for packaging a multitude of varying products including items requiring sterilization under retort conditions. Stretch forming laminate sheets into containers is universally known in the packaging art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the laminate film taught by Ohba to produce stretch formed containers that were capable of undergoing retort sterilization.

13. In such an instance, the plasticizer containing polycarboxylic acid layer (applicant's (bc)) would be *formed* on the substrate layer without a heating operation. While Ohba may recite employing a subsequent heating operation to laminate recited, nonetheless, Ohba does not recite that it is necessary to employ a heating operation to *form* the (bc) layer. It is noted that applicant's independent claims 1 and 13 only require that the layer (bc) is *formed* without a heating operation, but does *not* exclude the layer from being subject to heat treatment *after* the formation of the layer since both independent claims recite the open ended phrase "comprising". Additionally, Ohba recites that "In order to enhance the water resistance and gas-barrier properties of a polymer layer which is fixed onto a substrate, at least the polymer layer may be subjected to heat treatment".(Col. 8, lines 57-60) This recitation provides an means of improving the laminate recited by Ohba, but does not require the heat treatment step for those not wishing to enhance the water resistance and gas-barrier properties of the polymer layer.

14. As such, the obvious production of stretch formed containers utilizing the laminate disclosed by Ohba that had or had not undergone a heating step subsequent

Art Unit: 1794

to the formation of the (bc) layer would have produced the invention and method as claimed in claims 1, 6-8, 10, 13, 16-20. The film disclosed by Ohba used to make stretch formed containers would have served as the multilayer sheet or preform claimed in claims 11 and 12.

15. Regarding claims 13 and 21-23: Claims 13 and 21-23 recite an area draw ratio of between 1.1 and 100, 50, 25 and 5 times respectively. It is well known in the polymer arts to vary the result effective variable of the area draw ratio of a stretch formed container to vary the thickness of the walls of the container formed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized the draw ratio of the obvious method of stretch forming depending on the desired thickness of the container to be produced. This obvious optimization of a result effective variable would have produced the invention as claimed in claims 13 and 21-23.

16. Since the application of the metal containing resin layer to the polycarboxylic acid layer mixed with a plasticizer is intended to increase the oxygen barrier property of the polymer film it would have been obvious to one having ordinary skill in the art at the time the invention was made to have disposed another metal containing resin layer on the other side of the polycarboxylic acid layer to further increase the barrier properties of the film. This obvious modification of the invention recited by Ohba would have produced the invention and method as claimed in claims 3 and 15.

17. Regarding claims 21-23: It is quite common in the stretch forming art to perform the heating treatment of a substrate prior to stretching the substrate. It would have

Art Unit: 1794

been obvious to one having ordinary skill in the art at the time the invention was made to have heated the multi-layer film disclosed by Ohba prior to stretch forming of the film. This obvious rearrangement of method steps would have produced the method claimed in claims 21-23.

Response to Arguments

18. Applicant's arguments filed 6/23/09 have been fully considered but they are not persuasive.

19. Applicant has asserted on page 7 of the remarks that "in Ohba, to obtain the polymer layer having a sufficient gas barrier property, the heat treatment is an indispensable process" and that this assertion is evidenced by the fact that the examples recited in Ohba disclose using heat treatment. However, Ohba only recites heat treatment as a means to "enhance the water resistance and gas barrier properties of the polymer layer", not that this heat treatment step is "indispensable" as asserted by applicant. Further, "nonpreferred disclosures can be used. A nonpreferred portion of a reference disclosure *is just as significant* as the preferred portion in assessing the patentability of claims." In re Nehrenberg, 280 F.2d 161, 126 USPQ 383 (CCPA 1960) (emphasis added). As such, applicant's assertions are not found persuasive.

20. Applicant has asserted on page 8 of the remarks that the addition of the limitation that the layer (bc) is formed with a heating operation "that facilitates esterification between hydroxyl groups of the plasticizer (C) and carboxyl groups of the polycarboxylic

Art Unit: 1794

acid based polymer (B)" differentiates the heating step used for stretch molding from the heating step recited by Ohba. Nonetheless, the addition of this limitation does not change the fact that Ohba forms the (bc) layer without applying heat. Applicant's claims only require that "said layer (bc)" is **formed** without a heating operation, not that a heating operation can never be performed on the *laminate*. Ohba clearly states making the polymer layer (bc) without the application of heating.

21. Applicant assertions regarding the oxygen permeability coefficient recited in Ohba are not found persuasive since applicant has again failed to correctly convert the oxygen permeability recited by Ohba. It is noted by the examiner that 1 MPa is approximately equal to 1 atm. As such, Ohba recites that the laminate has at the very least an oxygen permeability of less than $400 \text{ cm}^3/\text{m}^2 \cdot \text{day} \cdot \text{MPa}$ while also reciting oxygen permeabilities of less than $1.5 \text{ cm}^3/\text{m}^2 \cdot \text{day} \cdot \text{MPa}$ in the examples in Table 1-1. Applicant has stated that the oxygen permeability coefficient recited in the specification for the instantly claimed laminate is less than $100 \text{ cm}^3/\text{m}^2 \cdot \text{day} \cdot \text{MPa}$, however, this level of oxygen permeability is not present in the instant claims. Instead, claims 7 and 18, which are the only claims that actually recite any parameters for oxygen permeability, recite that the oxygen permeability coefficient need only be less than $1000 \text{ cm}^3/\text{m}^2 \cdot \text{day} \cdot \text{MPa}$, a range which encompasses the range disclosed by Ohba.

22. Applicant has asserted on page 9 of the remarks that a laminate such as that disclosed by Ohba would not be stretchable since the films disclosed in documents recited in applicant's specification are not stretchable. However, as enumerated above, Ohba does not require the heat treatment step that applicant asserts results in a film

Art Unit: 1794

that cannot be stretched. Additionally, the inventions cited by applicant in the specification are not the same inventions as disclosed by Ohba. However, it is noted that "the arguments of counsel cannot take the place of evidence in the record", *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965). It is the examiner's position that the arguments provided by the applicant regarding Ohba must be supported by a declaration or affidavit. As set forth in MPEP 716.02(g), "the reason for requiring evidence in a declaration or affidavit form is to obtain the assurances that any statements or representations made are correct, as provided by 35 U.S.C. 24 and 18 U.S.C. 1001".

23. Applicant asserts on page 10 of the remarks that since Ohba does not recite stretch molding that "the effects achieved by the stretched-formed container obtained by stretch forming the film are unknown and unexpected in view of Ohba". However, applicant has failed to enumerate exactly what "effects" applicant is referring to. As such, it is impossible for the examiner to determine if these "effects" would indeed be unexpected. Applicant has stated that "Ohba does not suggest gas barrier properties of the film which has been stretched". While this may be true, one of ordinary skill in the art would have had a reasonable expectation that a film with good barrier properties would still have beneficial barrier properties upon stretching. Especially in view of the fact that those of ordinary skill in the art are aware that stretching causes the orientation of polymers into a more crystalline state, which in and of itself increases the barrier properties of polymer films. As such, applicant's arguments are not found persuasive.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELE JACOBSON whose telephone number is (571)272-8905. The examiner can normally be reached on Monday-Thursday 8:30 AM-7 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571)272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michele L. Jacobson
Examiner /M. J./
Art Unit 1794

/Rena L. Dye/
Supervisory Patent Examiner, Art Unit 1794